先端科学技術研究科　修士論文要旨

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要旨

Automatic speech recognition (ASR) systems play a crucial role in healthcare, enabling effective communication and supporting applications such as electronic medical record generation, real-time transcription and telemedicine.While ASR systems have made significant progress, Chinese-English code-switching in medical dialogues presents unique challenges that remain under-explored, partly due to the scarcity of dedicated datasets and the limitations of state-of-the-art multilingual ASR models like Whisper in addressing the linguistic complexities of code-switching.To address these challenges, we attempt to construct a Chinese-English code-switching medical dialogue speech dataset derived from monolingual medical dialogue data with Matrix Language Frame (MLF) theory.We further enhance ASR performance using Whisper, by integrating two key methods: language token concatenation for improved language identification and knowledge prompting for domain-specific terminology correction. Experimental results on the constructed dataset demonstrate that, under a zero-shot setting, the proposed method reduces general Mixed Error Rate (MER) by 3.30% and Medical Concept Mixed Error Rate (MC-MER) by 5.39%, validating the effectiveness of the proposed approach.This work highlights the potential of zero-shot prompting techniques for addressing Chinese-English code-switching recognition tasks in healthcare environments and provides insights for improving ASR systems in bilingual settings.